

when incorporated in the Berkeley collection could only be labeled "Lemmon Herbarium" as there was no exact statement of data found. In any case, Underwood did not study or cite these particular specimens, rather the ones in New York. It seems well demonstrated that Mount Shasta was intended as the general area and cannot have been the exact locality. Though Lemmon collected this rare fern in Scott Valley, also on the south side of Scott Mountain, and also on the south side of Mount Eddy, the latter is here proposed as the lectotype locality. It is selected because of the detailed locality data supplied contemporarily by Lemmon to D. C. Eaton, and published by Eaton [for *Aspidium mohrioides*], and of Lemmon's own listing of Mount Eddy in his Ferns of the Pacific Coast. These statements are quoted here fully on a previous page.

The exact taxonomic position of this fern continues to trouble the botanists. At first Eaton considered it a distinct species, then on reconsideration determined it as *Aspidium* [= *Polystichum*] *mohrioides* Bory, and later H. Christ agreed. Underwood separated it as a new species, *Polystichum Lemmoni* which was accepted by Piper and by Maxon. Now, Professor Fernald (*Rhodora* 26: 92. 1924) has made the northern plant a variety of the South American one and evaluated its characters. He classifies it as *Polystichum mohrioides* (Bory) Presl var. *Lemmoni* (Underw.) Fernald. The writer has not made a detailed revision of this group, but he recently compared the North American *P. Lemmoni* with good material of *P. mohrioides* from the far extreme of South America, and was struck by their dissimilarity. For the time being he is content to follow Underwood and Maxon, and to accept *Polystichum Lemmoni* Underwood as a species.

University of Hawaii, Honolulu,
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FAR WESTERN NOVELTIES IN SALIX

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Activities of collectors continue to bring to light hitherto unrecognized variations in willows. Continuing studies of relationships indicate a need for new combinations which better represent actual affinities. This paper contains some novelties in each category.

The abbreviations for herbaria containing specimens cited are as follows: BPI, National Arboretum Herbarium, Bureau of Plant Industry, United States Department of Agriculture; CAS, Herbarium of the California Academy of Sciences; CRB, *Salix* herbarium of Carleton R. Ball; CUA, Herbarium of the Catholic University of America; USN, United States National Herbarium; SU, Herbarium of Stanford University; UC, Herbarium of the University of California.

NEW VARIETIES OF *SALIX PULCHRA* CHAMISSE

Salix pulchra, with rather broadly elliptical leaves acute at both ends, is a species of far northwestern North America. It occurs throughout Alaska, except the southeastern portion, and in northwestern British Columbia, most of Yukon Territory, and the lower Mackenzie Valley.

Like many species of *Salix*, it exhibits both broad-leaved and narrow-leaved variations from the normal or average. The Swedish salicologist, Andersson, frequently added varieties *latifolia* and *angustifolia* when describing new species, or reviewing old ones, as in *S. Richardsonii*. The late American salicologist, Bebb, also often described one or both variations, as in *S. laevigata* and *S. glaucophylla*. More recently, Fernald has separated the Labradorian *S. cordifolia* into a series of varieties based on leaf size, shape, and pubescence. Still more recently, Schneider has erected varieties of *S. anglorum*, *S. ovalifolia* and others on leaf width and shape. The writer also has followed this practice in *S. lasiandra*, *S. lutea*, *S. glauca*, *S. reticulata* and other species. Because these variations in *S. pulchra* render difficult its complete recognition from descriptions of the more typical material, it seems desirable to describe as varieties its two chief leaf variations.

SALIX PULCHRA Cham. var. *Looffiae* var. nov. E forma typica speciei differt foliis anguste vel late obovatis vel obovato-ovalibus, apice rotundatis vel apiculatis vel terminalibus acutis.

The variety *Looffiae* differs from the species in having its leaf-blades narrowly to broadly obovate, or obovate-oval, rounded to apiculate at apex or the distal leaves acute. Common dimensions in centimeters are: $1 \times 2-2.5$, $1.5 \times 3-3.5$, $2 \times 3-4$, $2.5 \times 3.5-4$, 3×4 , $2.5-3 \times 5$ and $3-3.5 \times 6-7$.

It is a pleasure to name this willow for Ethel H. (Mrs. Henry B.) Looff of Oak Harbor, Washington, who has collected on Kodiak Island during two seasons. Her critical ecological work has done much to explain the distribution and the peculiar expression of arctic willows on that island.

Specimens referred to this variety are listed below. Most of the plants from coastal areas are recorded as of prostrate or depressed habit, but this is true also of specimens of typical *S. pulchra*. The specimen collected by Setchell appears to have been erect in habit.

SOUTHERN ALASKA. Kodiak Island: Alitak, prostrate, mountain slope, eastern exposure, altitude 500 feet, May 26, 1940, *Ethel H. & Henry B. Looff 1191* (type, pistillate, CRB, 3 sheets); prostrate, southern exposure, *1198A* (CRB, pist.); decumbent, in mixed moss and grass association, altitude 75 m., *W. J. Eyerdam 2047* (CRB, pistillate); no specific locality, *Roland Snodgrass 39* (CRB); altitude 1385-2500 feet, Gulkana to Paxson, *Wm. A. &*

Clara B. Setchell 77 (CRB, UC). WESTERN ALASKA. St. Paul Island, Pribilof Islands, August 7, 1891, *C. H. Merriam* (USN); plants browsed by muskoxen, Nunivak Island, *O. J. Murie* 2060 (CRB); St. Matthew Island, *Coville & Kearney* 2086a (USN); St. Lawrence Island, Northeast Cape, *Coville & Kearney* 2001 (USN); King Island, Bering Sea, *J. P. Anderson* 3607A (CRB). NORTHERN ALASKA. Walker Lake, Kobuk River, August 21, 1901, *W. C. Mendenhall* (USN); Alatna River, 65 miles above mouth, July 23, 1901, *Mendenhall* (USN); Beaver, Yukon River, *W. A. & C. B. Setchell* 408 (CRB, UC, USN); Circle City, Yukon River, *W. A. & C. B. Setchell* 392 (CRB, UC, USN).

The more vigorous plants, like those from the Yukon River and the Alatna River (tributary of the Koyukuk), have elongated seasonal shoots with broad leaves at the outer end and relatively narrower blades below.

SALIX PULCHRA Cham. var. *Palmeri* var. nov. E forma typica speciei differt foliis anguste oblongis vel elliptico-oblongis vel anguste elliptico-oblongeolatis, apice acutis vel acuminatis, 0.8–1.5 cm. latis, 4–6(8) cm. longis.

The variety *Palmeri* differs from the species in having narrowly oblong, elliptic-oblong, or narrowly elliptic-oblongeolate leaf blades, 0.8–1.5 centimeters wide, 4–6 or 8 centimeters long, and acute to acuminate at the apex. Common dimensions in centimeters are: 0.7×3.5 , $0.8-1 \times 4$, $0.8-1.2 \times 5$, $1-1.3 \times 6$, 1.5×7 , and $1-2 \times 8$.

A form described by Andersson of Sweden requires consideration. In 1858, he published a paper on American willows simultaneously in Sweden (*Oefvers. Kon. Vet.-Akad. Förh.* 15: 100–133) and America (*Proc. Am. Acad. Arts & Sci.* 4: 50–78). In the Swedish paper (p. 123), he described *S. phyllicoides*, believed by Bebb to be *S. pulchra* but by Schneider to be a different Asiatic species, and added: “*-latifolia.*” “*-angustifolia,*” without description or indication of rank. In the American paper, edited and annotated by Asa Gray, these entities are called forms and described (p. 64). The second reads: “Forma *angustifolia*: foliis 1–2 pollicaribus $\frac{1}{2}$ poll. latis lanceolatis integerrimis.” Gray doubtless got this information from Andersson. In his *Monographia Salicum*, 1867, Andersson described this form as “*angustifolia*: foliis lanceolato-linearibus, 4–5 pollices longis medio $\frac{1}{2}$ – $\frac{3}{4}$ poll. latis. . . .” In his treatment of world Salices (*DC. Prodr.* 16 fasc. 2: 190–323. 1868), he writes “2, *argentifolia*: foliis lanceolato-linearibus 2–3 poll. longis. . . .” (p. 245).

The name *argentifolia* doubtless was a typographical error but the striking discrepancies in leaf length remain unexplained. No localities or collectors are cited in any paper. Because of this omission, the discrepancies noted, and the uncertain identity of *S. phyllicoides*, Andersson’s form must be disregarded.

The specimens referred to var. *Palmeri* are listed below. The

variety apparently is most common in a belt extending south to north through central Alaska, with an outlier to the west on Norton Sound and to the east on the Arctic Coast of northeastern Yukon Territory. The type (*Palmer 121*) was collected in the Matanuska Valley of south-central Alaska. Another specimen of the type collection is in the herbarium of the Fish and Wildlife Service at the Research Laboratory of the Patuxent Wildlife Refuge near Beltsville, Maryland. It is a pleasure to name this variety for L. J. Palmer of the United States Fish and Wildlife Service at Fairbanks, whose collections of plants browsed by moose and reindeer have done much to increase our knowledge of their distribution, ecology, and taxonomy.

SOUTH-CENTRAL ALASKA. Alaska Peninsula, Kukak Bay, *Coville & Kearney 1633* (CRB, USN); Kenai Peninsula, between Skilak and Tustumena lakes (moose-browse reconnaissance), *L. J. Palmer, 1, 6, 22, 32, 36, 56, 66* (CRB); Olga Bay, Kodiak Island, altitude above 1600 feet, *E. H. & H. B. Loeff 356* (CRB); mountain shrub type, Matanuska Valley, *Palmer 121* (CRB, type); Richardson Highway, Gulkana to Paxson, *W. A. & C. B. Setchell 81* (CRB, UC); Summit Lake, *W. A. & C. B. Setchell 105* (CRB, UC); Mount McKinley National Park, Savage River Headquarters, altitude 3800–4200 feet, *W. A. & C. B. Setchell 185, 186, 189, 193* (CRB, UC). **WEST-CENTRAL ALASKA.** Norton Sound: Egavik, August 11, 1931, *C. H. Rouse 13, 14* (CRB); Pastolik Reindeer Camp, *Rouse 26* (CRB). **CENTRAL ALASKA.** Vicinity of Fairbanks: Pedro Dome, altitude 2800 feet, August 11, 1909, *R. S. Kellogg* (USN); McKinley Creek, tributary of Forty-mile River, *Murie 141* (USN). Steece Highway, Fairbanks to Circle City, Twelve-mile Summit, altitude 3225 feet, *W. A. & C. B. Setchell 551* (CRB, UC). **YUKON TERRITORY.** Near delta of Mackenzie River, Mackenzie Bay, Shingle Point, 69 north lat., 137 west long., *A. Dutilly 18141* (CUA), *18143, 18144* (CRB, CUA).

NEW SPECIFIC AND VARIETAL COMBINATIONS

Following study of more adequate material, it often becomes necessary to elevate varieties to specific rank, to degrade specific entities to varietal rank, or to transfer varieties from one species to another. Changes of all three kinds are made herein.

Salix Walpoleii (Coville & Ball) comb. nov. *Salix Farrae Walpoleii* Coville and Ball, Bot. Gaz. 71: 435–436. 1921.

It was a mistake to arrange this northern willow as a variety of the more southern species belonging to Section Cordatae. Further study and more abundant material show that it is most closely related to *S. pyrifolia* Andersson (*S. balsamifera* Barratt), which Schneider separated from the Cordatae and made the basis of a new section, Balsamiferae. Our plant, however, appears to be more properly regarded as a second species in that section than as a variety of *S. pyrifolia*.

The description given at the time of varietal publication still is reasonably adequate. The branchlets are somewhat more pubescent than was then indicated, the distal leaves on vigorous shoots may be subovate and rounded at base, the stipules reach 8 millimeters, and the styles sometimes are 0.4 millimeters long. A comparison of some contrasting characters of *S. pyrifolia* and *S. Walpolei* is given below.

ORGAN	<i>S. pyrifolia</i>	<i>S. Walpolei</i>
Young branchlets	glabrous	more or less pubescent
Blades		
shape	ovate or ovate-lanceolate	elliptical-lanceolate to obovate
base	cordate or rounded	acute or distal roundish
margin	serrulate or crenate-serrulate	entire or remotely crenulate
venation	shallowly rugose	reticulate
Stipules	wanting or minute	2-6 or 8 mm. long
Pistillate aments	3-8 cm. long	2-5 or 6 cm. long
Capsules	7-9 mm. long	5-7 mm. long
Pedicels	2.5-3.5 mm. long	1.0-1.5 mm. long

The known range of this plant has been greatly extended since 1921. The nine specimens then listed were all from north-west Alaska and ranged in location from Seward Peninsula at Bering Strait to the Dall River north of the Yukon River, at about 150 west longitude. More recent collections have extended its recorded range far to the south and east, as shown below.

WEST-CENTRAL ALASKA. Seward Peninsula and adjacent Yukon Valley: Seward Peninsula, 1900, *A. J. Collier* (USN); vicinity of Port Clarence: north side and east end of Grantley Harbor, *F. A. Walpole 1594* (USN); rocky banks, northwest shore of Imunik Basin, July 30, 1901, *Walpole 1624* (CRB, photo; USN, pistillate type); banks of Tuksuk Channel, August 5, 1901, *Walpole 1742* (CRB, USN staminate type); Cape Nome, summer 1900, *F. E. Blaisdell* (USN); gravelly bluff near road, Hastings Creek, *C. W. Thornton 614* (USN); near Nome, *Thornton 630* (CRB, USN); tundra, Nome, *George N. Jones 9043B* (CRB). Kaltag, Yukon River east of Norton Sound: bank of Yukon River, *Rouse 45* (CRB); water's edge, *W. A. & C. B. Setchell 457-459* (CRB, UC). NORTH-CENTRAL ALASKA. Valley of Kobuk River, near camp, August 20, 1901, *W. C. Mendenhall* (USN); Valley of Alaskuk River, 30 miles above mouth, July 21, 1901, *Mendenhall* (USN); Valley of Alaskuk (Alatna?) River, along Help-me-Jack Creek, near camp, July 26, 1901, *Mendenhall* (USN); Dall River, 75 miles above mouth, June 25, 1901, *Mendenhall* (USN, 2 sheets); Wiseman, middle fork of Koyukuk River, *J. P. Anderson & G. W. Gasser 5815* (CRB). EAST-CENTRAL ALASKA. Steece Highway, Fairbanks to Circle City: creek near Twelve-Mile Roadhouse, altitude 2450 feet, *W. A. & C. B. Setchell 530, 534b* (CRB, UC); Faith Creek, some distance below Twelve-Mile Summit, to Cleary Summit, altitude 2600-2700 feet, *W. A. & C. B.*

Setchell 555, 561 (CRB, UC); Twelve-Mile Roadhouse, *Anderson 2433* (CRB). Mt. McKinley National Park: Igloo Camp, altitude 2600 feet, *W. A. & C. B. Setchell 173* (CRB, UC); stream banks near Park Headquarters, *Aven Nelson 3595, 3604* (CRB); Cantwell, southeast corner of Park, *Nelson 4215* (CRB). Richardson Highway: Rapids Roadhouse, altitude 2130 feet, *W. A. & C. B. Setchell 110, 120* (CRB, UC); altitude 2700–3000 feet, Paxson, *W. A. & C. B. Setchell 87, 90, 95* (CRB, UC). MACKENZIE, NORTHWEST TERRITORY. Alkavik, 68 deg., 13 min. north lat., 135 deg. west long. *A. Dutilly 18054* (CRB, CUA), *18055* (CUA); the common willow of alluvial ridges, Mackenzie Delta, Pete's Creek, east side of Richards Island, between 69 and 70 deg. north lat., *J. J. Lynch & C. E. Gilliam 1605* (Herbarium of United States Fish and Wildlife Service).

SALIX HINDSIANA Benth. var. *leucodendroides* (Rowlee) comb. nov. *Salix macrostachya leucodendroides* Rowlee, Bull. Torr. Bot. Club 27: 250, pl. 9, fig. 6 (doubtfully representing this variety). 1900; Abrams, Fl. Los Angeles 102, 1904 (at least in part); *ibid.*, Suppl. ed. 102. 1911. *S. argophylla* Nutt. *sensu* Rowlee, Bull. Torr. Bot. Club 27: 251, pl. 9, fig. 7. 1900 (in part); Abrams, *ibid.* 102. 1904 (probably in part); Jepson, Man. Fl. Pl. Calif. 264. 1923 (in part), not of Nuttall. *S. exigua virens* Rowlee, Bull. Torr. Bot. Club 27: 255. 1900 (in part). *S. integrifolia leucodendroides* Rowlee, Bull. Torr. Bot. Club 27: 250. 1900 (*nomen nudum*). *S. longifolia* Muhl. *sensu* Parish, Zoe 4: 347. 1894 (in part, as indicated by localities), not of Muhlenberg. *S. longifolia argyrophylla* Anders. *sensu* Jepson, Mem. Univ. Calif. 2: 178. 1910 (in part), not of Andersson. *S. sessilifolia* Nutt. *sensu* Britton and Shafer, No. Amer. Trees, 156. 1908 (in part); Jepson, Mem. Univ. Calif. 2: 178. 1910 (in part), not of Nuttall. *S. sessilifolia leucodendroides* (Rowlee) Schneider, Bot. Gaz. 65: 26. 1918, *ibid.* 67: 319–322. 1919 (synonymy, discussion and citation of specimens), Jour. Arn. Arb. 3: 64, 86 (and pages cited for *S. sessilifolia*). 1922; Ball in Abrams, Illus. Fl. Pac. States 1: 491 (discussed under *S. Hindsiana* Benth). 1923; Jepson, Man. Fl. Pl. Calif. 264. 1923.

The variety *leucodendroides* differs from the species in having longer, relatively narrower, more pointed, and always remotely denticulate leaves, usually less densely pilose capsules and flower scales, and less evident styles.

Seasonal shoots usually densely white-pubescent, older branchlets less so; blades linear to linear-elliptical, 5–8 cm. long and 4–7 mm. wide or, on vigorous shoots, 9–10.5 cm. long and 6–8 or 9 mm. wide, common sizes, 4 × 0.5, 5 × 0.4–0.5, 6 × 0.4–0.6, 7 × 0.5–0.7, 8 × 0.5–0.7, 9–10 × 0.6–0.8 cm., short-acuminate at apex, tapering at base into a short petiole, always remotely denticulate, especially on the outer half, the teeth sometimes subspinulose, densely pilose-pubescent and usually silvery when

young, becoming more thinly clad by expansion, and frequently becoming more or less glabrate and greenish with age (and then often referred to *S. exigua virens* Rowlee); aments coetaneous, leafy-peduncled, solitary or 2-4 together; peduncles 1-5 cm. long in flower, the pistillate up to 8 cm. long in fruit; staminate aments 1 or usually 2-3, or occasionally 4, on one peduncle; pistillate aments 1 or 2 together, 2.5-4 or sometimes 5-6 cm. long; capsules lanceolate, 5-5.5 or 6 mm. long, closely sessile or occasionally very short-pedicelled, densely to thinly pilose, often becoming glabrate and brownish in age; styles scarcely evident or 0.1-0.3 cm. long; stigmas 0.5-0.7 mm. long, divided and reflexed.

For convenience, the brief description and discussion given by Rowlee for his new variety are quoted here.

"One to three meters high, wood soft: leaves much larger, 10-12 cm. long, 1 cm. wide, densely white tomentose on both sides, largest remotely denticulate: aments larger, cylindrical, 4-5 cm. long, otherwise as in the type."

"*S. integrifolia* var. *leucodendroides* is a very striking form from southern California collected by Mr. S. B. Parish, nos. 2134, 2040, and 640. There does not seem to be enough difference to warrant its separation as a species although intergrading forms are wanting."

The above description and discussion of variety *leucodendroides* leave much to be desired. First, Rowlee redescribed the common California long-leaf willow, *Salix Hindsiana* Benthams, under the name *S. macrostachya* Nuttall, a plant of the Columbia River Valley, and cited several California specimens. Then he asserted that, from the description, Benthams's California plant is the same as *S. argophylla* Nuttall, another plant from the Columbia Valley. The facts are that *S. macrostachya* is a synonym of *S. argophylla* and that *S. Hindsiana* Benthams is a good species, confined to California and adjacent Oregon and much more closely related to *S. sessilifolia* Nuttall, of Oregon and Washington, than to *S. argophylla*. Finally, the leaf size given by Rowlee is much larger than the average and denticulation is not confined to the larger leaves but is universal. The result was to confuse readers as to the characters and relationships of his variety. As the plant Rowlee held to be *S. macrostachya* really is *S. Hindsiana* Benthams, the present combination merely accomplishes what Rowlee thought he was doing.

His reference to a species, *S. integrifolia*, in the discussion above, is wholly without meaning. It seems probable that Rowlee contemplated renaming Benthams's plant, which has entire leaves, but later decided it was Nuttall's *S. macrostachya*.

Rowlee obviously did not designate a type, although he cited three collections by Parish (see above). The writer has seen a specimen of number 2040 in the herbarium of the University of California (sheet 55027). On the label, the word "Type" has

been written in Rowlee's own hand. There are two specimens of number 640 in the United States National Herbarium (sheets 780021, 940755). They are var. *leucodendroides* but there is no evidence that Rowlee ever saw them.

Variety *leucodendroides* occurs sparingly in at least five counties in the Coast Range and central basin of California north of the Tehachapi, where the species is common. It occurs more abundantly in all of the counties south of this divide, where the species is much less common. Several specimens from Humboldt County, in the northwestern part of the state, have been referred to this variety but they need further study and are not cited here.

In the western part of southern California this variety is the dominant representative of section *Longifoliae*, the long-leaf or sandbar willows. To the eastward it gradually is replaced by varieties of *Salix exigua* Nuttall. In the northern edge of its southern range it overlaps the range of the species. On the south it extends into Lower California and on the east into the edge of Arizona. Its altitudinal range is from approximately sea level along the Colorado River and the southern coast to elevations of approximately five thousand feet in the southern mountains.

Because specimens of variety *leucodendroides* are seldom correctly identified, but usually are found under such names as *argophylla*, *argyrophylla*, *exigua*, *Hindsiana*, *longifolia*, *macrostachya*, and *sessilifolia*, it is desirable to cite the numerous specimens which have been referred to it by the writer:

CALIFORNIA (counties from north to south). SANTA CLARA COUNTY. Upper east fork, Coyote Creek, *W. R. Dudley 4207* (CAS). SAN BENITO COUNTY. Creek east of Lookout Mountain, altitude 3300 feet, *Hall 9926* (USN); The Pinnacles, *Eastwood 6750* (CAS); San Juan, *Elmer 4908* (CAS, USN). MONTEREY COUNTY. Nacimiento River, *Brewer 544* (USN). TULARE COUNTY. Kern River, Peppermint Valley, altitude 4800 feet, *Dudley 779* (SU); Three Rivers, near Britton's, June 15, 1902, *Dudley* (SU). KERN COUNTY. Bakersfield, *Piper 6406* (USN), *E. A. McGregor 13* (SU); Santa Fe Railroad, west of Bakersfield, *Heller 7591* (SU, 2 sheets; UC). VENTURA COUNTY. Santa Ynez Mountains: Matilija Canyon, 6.5 km. below Matilija Hot Springs, altitude 270–300 meters, *Fosberg 7423, 7425* (CRB, 2 sheets each; USN, UC); Matilija Canyon, Ojai Valley, altitude 270 meters, *Mrs. H. P. Bracelin 633–636* (CRB, 3 sheets of each; USN, UC); Shady (?) Canyon near Ojai, altitude 600 feet, May 22, 1866, *S. F. Peckham*; Sespe, *F. W. Hubby 134, 135* (label reads "Santa Barbara Co.") (SU); Sespe Canyon, September, 1914, *B. W. Everman* (CAS); Piru Creek, 10 miles above Piru, *Ralph Hoffman 354* (CRB); Piru Creek, 5 km. above Piru, altitude 270 meters, Santa Barbara National Forest, *Fosberg 7426* (CRB, 4 sheets; USN, 3 sheets); east of Piru, altitude 180 meters, *Bracelin 629* (CRB, 2 sheets), *630, 631* (CRB, 2 and 3 sheets; USN, UC); Hueneme, April 7, 1902,

Burt-Davy (UC); Oxnard, Patterson Ranch, *Burt-Davy* 7630 (UC); delta plain, Santa Clara River, *Hoffman* 181 (CRB); Ventura, along beach, *Eastwood* 5034, 5035 (CAS). LOS ANGELES COUNTY. San Gabriel or Sierra Madre Mountains and their southern foothills: Arraster, altitude 2750 feet, May 10, 1919, *F. W. Peirson* (CRB); Castaic Creek, below Castaic, *Fosberg* 7411, 7413 (CRB, USN, UC); Gorman, *C. R. & B. S. Ball* 2526 (CRB, 3 sheets; USN, UC); Saugus, *Elmer* 3650 (USN); Burbank, 1904, *J. C. Nevin* (SU). San Gabriel Mountains: canyons of Sierra Madre Mountains, May, 1888, *Hasse* (USN); Little Tujunga Canyon (near Burbank), *P. Parney* 233 (CAS); San Gabriel Wash, altitude 700 feet, March 6, 1921, *Peirson* (CRB); Tujunga Canyon, altitude 1300 feet, March 30, 1919, *Peirson* (CRB); Tujunga Wash, Stonehurst, San Fernando Valley, *Fay A. MacFadden* 11047 (CRB); Verdugo Hills, La Tuna Canyon, *MacFadden* 3069 (SU, UC), 11044 (CRB); west fork of Garapito Creek, altitude 1150 feet, *Ewan* 4219 (CRB); Puddingstone Canyon, San Jose Hills, *Wheeler* 1723A, 1723B (CRB). Santa Monica Mountains: between Calabasas and Agoura, *Fosberg* 5850 (CAS, CRB, 3 sheets; USN, SU, UC, 3 sheets). Los Angeles and vicinity: Elysian Park, *George B. Grant* 2294 (SU), 1156 (UC); Los Angeles River bottom, June, 1888, *Hasse* (USN), September 9, 1917, *F. Grinnell, Jr.* (SU); El Monte, altitude 300 feet, *Johnston* 1242 (SU); Englewood, *Abrams* 1493 (SU, 2 sheets). Mohave Desert: Lovejoy Dam, Lovejoy Buttes, *Peirson* 9859 (CRB). SAN BERNARDINO COUNTY. Mojave Desert: Cushenberry Canyon, *Parish* 4931 (SU, on sheet 51351 with *S. exigua*); 1.5 miles north of Victorville, altitude 815 meters, *Bracelin* 597, 598 (CRB, 2 sheets, USN, UC); Helendale (Judson), Mojave River, *Bracelin* 591 (CRB), 592 (CRB, USN); Hesperia, Mojave River bed, *G. I. Moxley* 950 (USN). San Bernardino Mountains and foothills: Waterman Canyon, *Shaw & Illingsworth* 4 (SU); mouth of Waterman Canyon, altitude 1500 feet, *Parish* 11401 (UC); borders of streams, altitude 1200 feet, *Parish* 11763 (UC); Keenbrook, Cajon Pass, *Parish* 4930 (SU); Cajon Pass, *Abrams & McGregor* 694 (SU). San Gabriel Mountains: Cucamonga Canyon, altitude 3000 feet, *Johnston* 1241 (SU); Red Hill near Upland, *Johnston* 1243 (SU). San Antonio Mountains: Prairie Fork of San Gabriel River, altitude 5000 feet, *Johnston* 1685 (SU). San Bernardino and vicinity: San Bernardino, *P. B. Kennedy* 1673 (CAS), *Marian L. Campbell* 45, 46 (CAS); altitude 1000-2500 feet, *Parish* 4591, 4592 (SU); Santa Ana River, altitude 1000 feet, *Parish* 4786, 4787 (USN, SU), 5197 (SU), *Alfred Rehder* 158 (CAS); San Bernardino Valley, *S. B. & W. F. Parish* 640 (USN, 2 sheets; this number cited by Rowlee), altitude 300 meters, *Parish* 11134 (UC); Colton, May 20, 1882, *M. E. Jones* (CAS, CRB, UC); Chemehuevis Valley, *Jepson* 5208 (SU). ORANGE COUNTY. Los Alamitos: July 20, 1908, *I. J. Condit* (UC, 2 sheets); Bixby Avenue, west of Hansen

Road, *C. R. Wolf* 3843, 3845 (CRB, USN, UC). Santa Ana River: Santa Ana, *Helen D. Geis* 553, 554 (SU); Santa Ana Canyon, altitude 500 feet, *J. T. Howell* 2440 (CAS, 2 sheets), altitude 120 meters, *Wolf* 2953, 2954 (CRB, USN, UC). RIVERSIDE COUNTY. Riverside and vicinity: Santa Ana River near Riverside, May 20, 1888, *Parish* 2040 (type?) (UC), *H. DeForest* 3 (CRB); Santa Ana River near Corona, *Crawford and Johnston* 1244 (SU); Santa Ana River, altitude 500 feet, *Peirson* 4282 (CRB); Santa Ana River, 4.8 km. north of Arlington, altitude 240 meters, *Bracelin* 599, 602, 604 (CRB, USN, UC), 605, 606 (CRB, 2 sheets each). San Jacinto, June, 1921, *Ethel H. Campbell* (CAS); San Jacinto Mountains, east base, along borders of Colorado Desert, *Hall* 2105 (SU, UC); San Jacinto Valley, June, 1897, *George F. Reinhardt* (UC); San Jacinto River Canyon, Oak Lodge, altitude 3000 feet, *Parish* 11702 (UC). Colorado Desert, Thousand-Palm Canyon, *DeForest* 2 (CRB). SAN DIEGO COUNTY. Mountain Spring (International Boundary Commission, United States and Mexico), *Edgar A. Mearns* 3040 (USN, SU); near Tia Juana River, Tia Juana, August, 1902, *A. C. Herre* (SU), *Abrams* 3485 (SU); near Tia Juana, June, 1895, *S. G. Stokes* (SU); San Diego River, San Diego, *Abrams* 3419 (SU); Old Town, *Bracelin* 620-623, 625-628 (CRB, 1 to 3 sheets each; USN, except last 3; UC); flats of San Luis Rey River, west of the Mission, *Wiggins* 3034 (SU; UC, 2 sheets); Jacumba Valley, *Abrams* 3679 (SU); Laguna Mountains, *Eastwood* 9253 (CAS); Lakeside, *Grant* 6860 (SU); Oneonta, altitude 25 (?) feet, *H. P. Chandler* 5116 (SU); Warner's Hot Springs, *Eastwood* 2822 (CAS). Imperial County. Colorado River bottoms, 10 miles from Yuma, Arizona, *Roxana S. Ferris* 1030 (SU, 2 sheets).

MEXICO. Baja California, near Tia Juana, *M. E. Jones* 3730 (CAS).

SALIX HINDSIANA var. *Parishiana* (Rowlee) comb. nov. *Salix Parishiana* Rowlee, Bull. Torr. Bot. Club 27: 249, pl. 9, fig. 3. 1900; *Abrams*, Fl. Los Angeles, suppl. ed., 101. 1911; *Schneider*, Bot. Gaz. 67: 323-325. 1919, Jour. Arnold Arb. 3: 65, 92, 98. 1921; *Ball* in *Abrams*, Illus. Fl. Pac. States 1: 492, fig. 1198. 1923. *S. exigua* var. *Parishiana* (Rowlee) *Jepson*, Man. Fl. Pl. Calif., 264. 1923.

Rowlee drew a fairly adequate description of his new species, *Salix Parishiana*, when it is considered that the foliage and aments of the type were not yet fully developed. For convenience of discussion and comparison it is reproduced here:

"A slender shrub, one to three meters high, bark grayish or brown, young twigs cinereous strigose: leaves linear-lanceolate, minutely and remotely denticulate, 5-7 cm. long by 3 mm. wide, silky canescent when young, glabrous and somewhat coriaceous when mature, veins few but very prominent: stipules none: aments on long leafy peduncles, appearing about April 1, 2-3 cm.

long by 1-2 (*sic*) cm. peduncles often 10 cm. long, the upper leaves of the branch much surpassing the ament: ament densely flowered, scales white densely villous all over, oblong, acute: filaments scantily (*sic*) hairy at the base: capsules densely villous, oblong, closely sessile: style distinct: stigmas linear, three times as long as thick.

"A very peculiar form, differing from *S. taxifolia* by its larger leaves and cylindrical aments and quite distinct from other species with linear stigmas.

"CALIFORNIA: Matilija Cañon, San Bernardino Co. (F. W. Hubby (*sic*), nos. 54, 55), Springs Valley, Inyo Co. (F. V. Coville and F. Funston, no. 263)."

Had Rowlee studied the more mature material, with the consequent larger and more evidently denticulate leaves and larger aments, he scarcely would have compared his species with *S. taxifolia* alone. Nor would he have stated so positively that it was "quite distinct from other species with linear stigmas." The type, as so frequently is the case, represents an extreme form of the entity.

Certain characters assigned by Rowlee, such as the glabrousness, linear-lanceolate shape, and veininess of the mature leaves, must have been observed in the collection by Coville and Funston from Inyo County (no. 263), as they are not exhibited by the type specimens. Number 263 probably is a desert form of *S. exigua*, as suggested by Schneider, who in turn considered *S. Parishiana* probably to be intermediate between *S. exigua* as it occurs in southern California and *S. sessilifolia* var. *leucodendroides*.

Through the courtesy of Dr. A. J. Eames and the late Dr. K. M. Wiegand, the types of *Salix Parishiana* Rowlee were made available to the writer from the herbarium of Cornell University. Both types, male and female, are mounted on one sheet. The label reads as follows: "S. longifolia, var. argyrophylla And., Pistillate fl., Cliff Glen; staminate fl., Ojai Hot Spgs., Matilija Cañon, Sta. Barbara Co., F. W. Hubby, No. 54, April 3, 1896." In the upper right corner are pencilled the words: "S. parishiana n. sp. W. W. R.". A second sheet bears a single more nearly mature pistillate specimen and a label reading: "Salix longifolia var. argyrophylla as to leaf characters; S. sessilifolia var. hindsiana as to style and stigma. Matilija Cañon, Kennedy's, Sta. Barbara Co., F. W. Hubby, No. 55, April 19, 1896." It has the same pencilled annotation as the first label, and both annotations are in Rowlee's handwriting. The first cited collection by Hubby (no. 54) consists of a male (type) shoot 38 centimeters long with a half dozen aments, and a female (type) shoot 30 centimeters long with some five aments. The second cited collection by Hubby (no. 55) is a single pistillate shoot about 24 centimeters long, with two aments. On each of the herbarium sheets is the inked annotation "S. parishiana n. sp., WWR." in Rowlee's hand.

From these three specimens, all from Matilija Cañon, and all annotated by Rowlee and cited with his original description, it is possible to give the following emended description.

Aspect gray or silvery-gray; seasonal branchlets puberulent to pubescent, those of the first year glabrate to puberulent; leaves subpetiolate, exstipulate, blades linear (not linear-lanceolate), 4–7 or 8 cm. long, 2–3.5 mm. wide, common sizes 5×2.5 , 6×2.5 – 3.5 , 7×2 – 3 , 8×3.5 , acute at base and apex, margins somewhat revolute, remotely and minutely denticulate, the midrib and primary veins slightly raised (not 'very prominent') on the gray to silvery puberulent upper surface, the lower surface silvery pubescent (leaves immature and therefore not 'glabrous and coriaceous when mature'); pistillate peduncle 2–3 cm. long in flower to 4 cm. long in fruit, the staminate 7–10 cm. long in flower, each bearing 8–10 foliage leaves; pistillate aments 2 cm. long in flower, 3 cm. long, 1 cm. wide in fruit (not '1–2 cm.');

capsule (no. 55, nearly mature) narrowly lanceolate (not 'oblong'), 4.5–5 mm. long, sessile, pilose, style evident but very short, 0.1–0.2 mm. long, stigmas linear-oblong, 0.5–0.6 mm. long, divided, spreading; flower scales broadly elliptical or elliptical-oblong, 2–2.5 mm. long, thinly pilose-pubescent or subglabrate on the outside, more pilose-pubescent within (not 'densely villous all over'); staminate aments about 2 cm. long and 0.5 cm. wide; stamens two, filaments free or united only at the extreme base, pilose with crinkly hairs on the lower half or two-thirds; ament scales as in the pistillate ament.

Variety *Parishiana* apparently is confined to the southern coastal district of California and occurs chiefly in the mountains from relatively low elevations to five thousand feet above sea level. Present material indicates a range from the Pinnacles in San Benito County to San Diego County at the international boundary. Specimens of the variety are found in herbaria under the names of various species of section *Longifoliae*, as *argophylla*, *exigua*, *Hindsiana*, *longifolia*, *macrostachya*, *sessilifolia* and their varieties.

CALIFORNIA. SAN BENITO COUNTY. Stream bank, Pinnacles, *J. T. Howell 4620* (CAS); Bear Valley, Pinnacles, *Chester Dudley 6* (CAS). VENTURA COUNTY. (Matilija Canyon is a tributary of the Ventura River, whereas all other streams mentioned are part of the Santa Clara River system.) Matilija Canyon, Cliff Glen (male type), Ojai Hot Springs (female type), April 3, 1896, *F. W. Hubby 54*; Kennedy's, April 19, 1896, *Hubby 55* (types, Cornell University; photographs, CRB, UC); Matilija Canyon, 6.5 km. below Matilija Hot Springs, Santa Ynez Mountains, altitude 270–300 meters, *Fosberg 7424* (CRB, 2 sheets; USN, UC); Sespe Creek (between Sulphur and Pine mountains), near Ten-Sycamore Flat, altitude 2300–2500 feet, *Abrams & McGregor 169* (SU, male and female; leaves 5–7 cm. \times 3–4 mm., style 0.2–0.4 mm. long, stigmas

1 mm. long); Mount Pinos (near center of northern boundary of Ventura County, its eastern flank drained by Lockwood Creek, a tributary of Piru Creek): Lockwood Creek, below Snedden's, *Dudley & Lamb 4632* (SU, bearing cone galls); Goodenough Meadow, *Dudley & Lamb 4717* (SU, leaves on fruiting branchlet 4-7.5 cm. \times 2-3.5 mm., style 0.1-0.2 mm. long; UC, "near Lockwood Valley Schoolhouse, June 26"); Lockwood Creek, June 5, 1930, *Hoffman* (CAS); Seymour Creek, altitude 5300 feet, *Hall 6343* (UC); 3.2 km. east of Piru, altitude 180 m., *Bracelin 632* (CRB, 2 sheets; USN, UC). LOS ANGELES COUNTY. San Francisco Canyon, *Parish 1984* (UC); San Antonio Mountains, Prairie Fork of San Gabriel River, altitude 5000 feet, *Johnston 1685* (UC, sterile, leaves shorter and broader than normal); near Camp Rock Creek, Pinyon Ridge, San Gabriel Mountains, altitude 4500 feet, *Peirson 716* (CRB). ORANGE COUNTY. Los Alamitos, July 20, 1908, *Condit* (UC). SAN DIEGO COUNTY. Tia Juana, *Eastwood 2926* (CAS).

United States Department of Agriculture,
Washington, D. C., October, 1941.

NOTES AND NEWS

The members of the University of California Expedition to El Salvador, under the capable and energetic leadership of Dr. R. A. Stirton of the Department of Paleontology, returned to the United States on May 25, 1942 after nearly six months of successful work in El Salvador. The party was hospitably and graciously received wherever it went. Two men, in particular, were of constant and invaluable assistance,—Dr. Mario Lewy of the Department of Agriculture of El Salvador and Mr. G. A. Swanquist of San Miguel.

The personnel was as follows: Mr. John Davis, herpetologist; Mr. William K. Gealey, geologist; Mr. Nathan Geer, cook and assistant paleontologist; Mr. Milton Hildebrand, mammalogist; Mr. Joe T. Marshall, ornithologist; Dr. R. A. Stirton, paleontologist; and Mr. John M. Tucker, botanist, representing the Herbarium of the University of California.

PROCEEDINGS OF THE CALIFORNIA BOTANICAL SOCIETY

February 21, 1942. The annual dinner meeting of the Society was held at the Berkeley Women's City Club on Saturday evening. About fifty members and guests were present. Dr. Alva R. Davis, President, acted as toastmaster and introduced with felicity the speaker of the evening, the distinguished mycologist, Dr. A. H. Reginald Buller, Professor Emeritus of Botany, University of Manitoba, and Hitchcock Professor, University of California, 1942. Dr. Buller discussed the ink fungi—species of the distinc-